

NOTES ON A PECULIAR NYMPH-VARIATION OF
ENCHENOPA BINOTATA SAY.

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Probably none of the native species of the Membracidae varies to such an extent in its nymphal colors as *Enchenopa binotata*. In this paper I have given an account of observations made during 1912 of one of the most striking nymph forms of that species.

On June 5, at Roselle, N. J., my son Herbert found an insect which at first I did not recognize as a Membracid, but on closer examination I found to my surprise it was a nymph of that family in the fourth stage, but with the porous covering very heavy, fuzzy in appearance, silvery white in color and conspicuously marked with deep velvety black.

The specimen was found on a low *Viburnum* bush two to three feet in height, near the place where my observations of the previous year were made, and I tried to find more in the same locality, but at first did not succeed. Later, however, my son found two more on the same bush, and one near by on another *Viburnum*. Two of these were in the fourth nymphal stage, and one in the fifth and were all identical with that first collected. Pl. IX, fig. *a* shows the fourth stage; figs. *b* and *c* the fifth, highly magnified. Subsequently six more were found, the last on June 29, and I observed that they always occurred singly, and on the young shoot near, or on the petiole of the leaf. Two of this lot however varied from those formerly taken, in having light green markings in place of the black, except that the sternum, mouth parts and upper portions of the legs ranged through various shades of light brown.

The temporary color occurring during the moulting period between the fourth and the fifth stages were observed by me in two of the insects on June 23 and 24 respectively. These also differed greatly from all these I have hitherto noticed in this species. Instead of appearing in the characteristic yellow color with lateral red mark-

¹ Observations on the Life History of *Enchenopa binotata* Say in the JOURN. N. Y. ENTOM. SOC., Vol. XX, No. 1. March, 1912.

ings, as described in a former article¹ they appeared at first blue-green with yellow markings gradually fading to a white and black color instead of brown, except that the base of the prothorax just above the head, continued a bright emerald green for some time before turning to white. Where, however, the black markings occur in the completed insect at first a grayish color became visible, and gradually deepened into black. The entire change was completed within twenty-four hours.

The insects were very restless in captivity, and 6 of the 10 collected died, only 4 becoming adult, *i. e.*, two of the black and white insects and the two green and white ones above mentioned. In moulting from the fifth to the adult stage all four of these passed through the same color phase (*i. e.*, green with yellow markings) as between the fourth and fifth stages.

In all cases the change began early in the morning and was completed by night of the same day; the first insect on July 1, two more on July 2, and the last beginning at 4.30 A.M., on July 8. The adult color assumed in each instance was dark purplish brown, characteristic of the darker color-variation occasionally seen in *E. binotata*. No insect of this adult color was found by me in collecting at this same color but exclusively on walnut.

Mr. G. J. Keller, of Newark, N. J., has kindly sent me four specimens, one male and three females of *E. binotata* which he collected on walnut June 9, at Elizabeth, N. J. These were of a similar lighter color than I have found on that plant (Newark, N. J., 1909).

Mr. Halsey J. Bagg sent me, July 19, a number of Membracidae nymphs found by him on Butternut at the old Bagg Homestead at Stillville, N. Y. All but one of these matured. It is remarkable that these nymphs were *E. binotata* with the same color variations as above mentioned, *i. e.*, some were black and white, while the rest were green and white. All however were of the same purplish brown color when full grown. The last two of these died July 27.